1916MNRAS..76..592B

Ser. ii., No. 13). The velocity surface is an ellipsoid of revolution, having the short axis equal to 1·3 siriometers per stellar year [a stellar (or galactic) year $=10^6$ tropical years] directed towards the pole of the Milky Way. The long axis amounts to 1·9 sir. per stellar year. There is no preferential direction in the movements of these stars in the plane of the Milky Way, such as has been found for the stars of the other spectral types.

The direction of the *vertex* is approximately (though by no means exactly) perpendicular to the radius vector from the centre. It is superfluous to accentuate the importance of this fact for the interpretation of the singularities found in the movements of the stars.

Observations of the Double Star Krueger 60. (Burnham Gen. Cat. 11761, 1880·0 α 22^h 23^m 43^s, $\delta+57°$ 6′.)

By E. E. Barnard. (Plates 9, 10.)

Attention was first called to this star by Professor A. Krueger in his meridian observations, where it was recorded as a wide double with a distance of 12″, being No. 60 of a list of double stars which Krueger had noted with the meridian circle. When measuring Krueger 60 in 1890 Professor Burnham found that the preceding component was an unequal double, with a distance of 2″·3. Through courtesy, therefore, this double star is called Krueger 60. The true double, however, was discovered by Professor Burnham. Krueger's two stars have no physical connection whatever, and their proximity was purely accidental—the following component being left behind for ever.

No further observations were made of these stars until 1898, when Professor Eric Doolittle found that the small double measured by Burnham in 1890 had a proper motion of nearly 1″ annually and that the two were in orbital motion. Since then this insignificant star, which under some proposed conditions of discrimination among double stars might run a chance of being excluded from the regular double star lists because of being too wide and too small to be of interest, has advanced to the front rank in importance.

The main interest about the star is in the fact that it is a binary system in comparatively rapid motion, and that it is relatively near to us.

In *Monthly Notices*, vol. lxviii. p. 629, 1908, the present writer has given a paper on the parallax and proper motion of Krueger 60 in which, from visual observations, the parallax is

$$\pi = +0''\cdot249 \pm 0''\cdot010.$$

The values of the parallax of this star, derived photographically by

1916MNRAS..76..592B

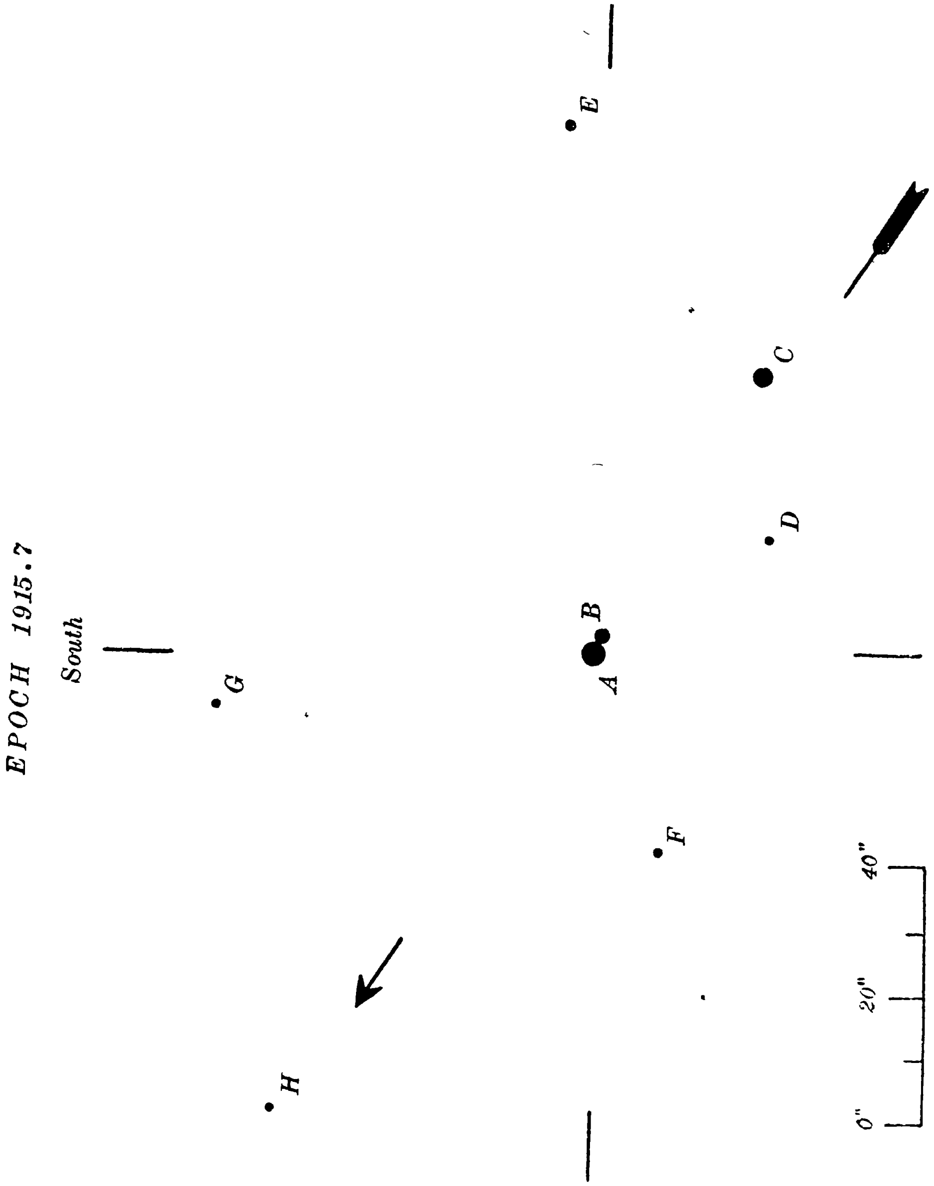

FIG. 1.—KRUEGER 60 AND COMPARISON STARS.

1916MNRAS..76..592B

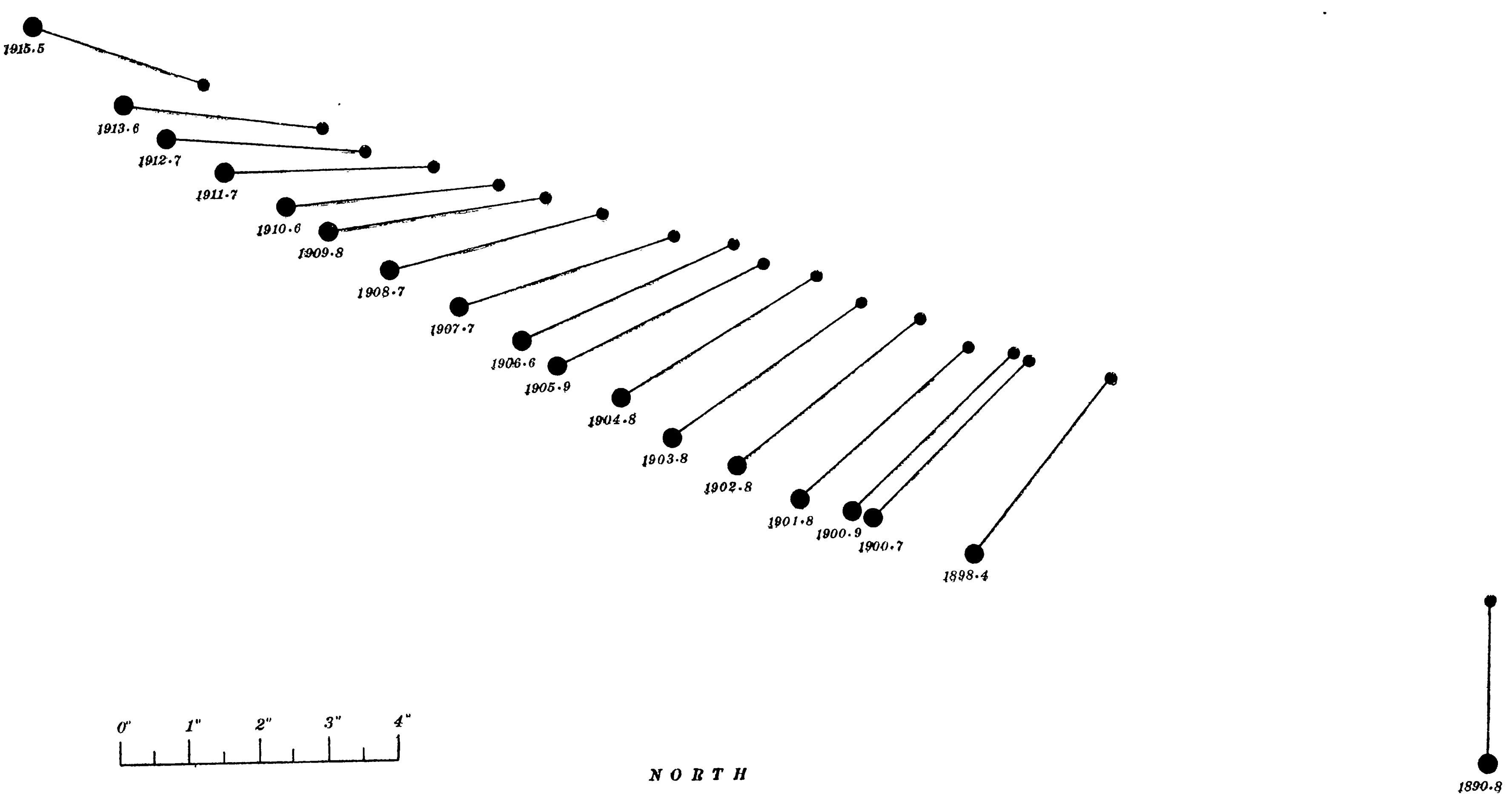

Fig. 2.—Krueger 60. The relative positions of AB with respect to C from 1890 to 1915. (C is omitted.)

1916MNRAS..76..592B

Dr. Schlesinger and Dr. Russell independently, are closely consistent with the above value:—

Schlesinger . $\pi = +0''\cdot 248 \pm 0''\cdot 009$.
Russell . . $\pi = +0''\cdot 258 \pm 0''\cdot 013$.

From these results it will be seen that, though the star is comparatively faint, it is one of our nearest neighbours in space.

In the paper in *Monthly Notices* already referred to, where a diagram is given at page 642, attention was called to the fact that the motion of A was not rectilinear. I have constructed a new diagram (Plate 10) containing the measures since Professor Burnham's in 1890 to the present time.

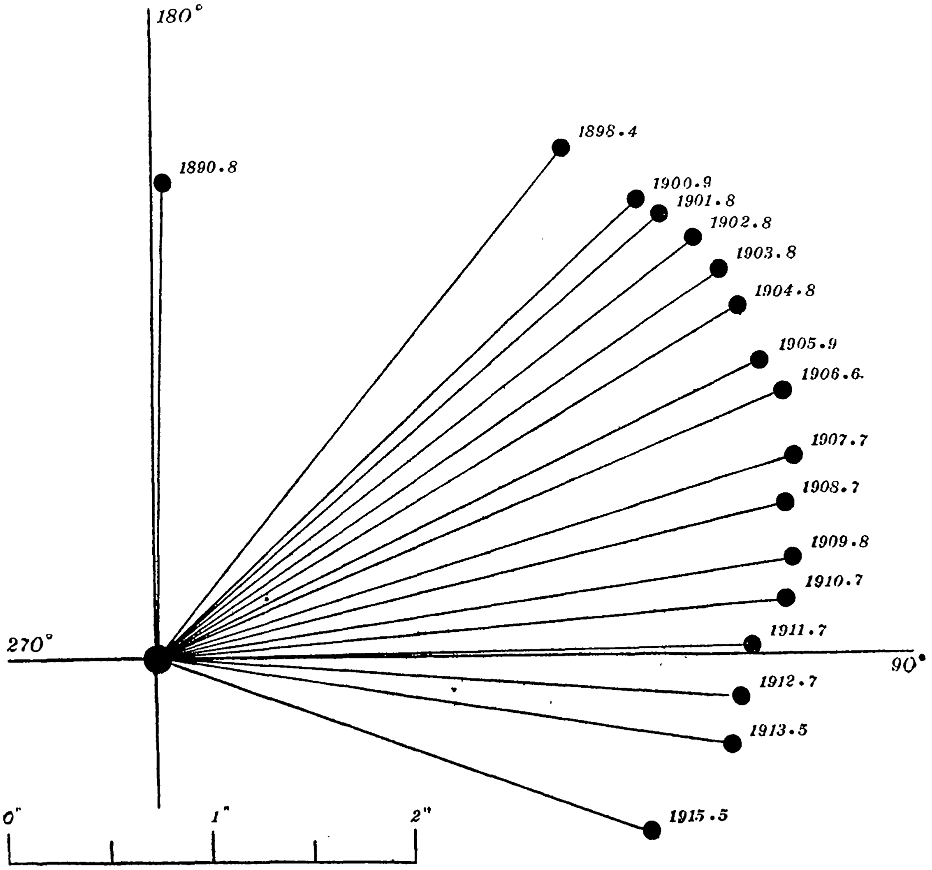

Fig. 3—Krueger 60, AB, from 1890 to 1915.

The measures of 1890 and 1907 give a motion in the direction 245°·0. Those of 1907 and 1915 give 235°·7. If we take the entire interval from 1890 to 1915, the motion is in 242°·1, which is not in bad agreement with the early value. An inspection of the new diagram shows that the two stars of this system, though quite unequal in brightness—differing by over a magnitude—are nearly equal in mass. One of them, therefore, is intrinsically much less bright than the other. Indeed, Russell found from observations up to 1910 that the mass of B is slightly greater than

1916MNRAS..76..592B

that of A, the ratio $\frac{B}{A}$ being 1·14 ± 0·14.* In plotting the position of B on this diagram it was noticed that the path of A was better represented than that of B with respect to A. I have constructed a new diagram for AB alone, and in this the path of B seems to be affected by a wave-like oscillation, with a very small amplitude, in a period of about six years. To see if any further light could be thrown on this question, the individual measures of AB were plotted, but this does not seem to improve matters. The quantity is really too small (of the order of ½ of a tenth of a second) to mean anything, and is probably due to unavoidable errors in the observations.

To determine independently the masses of A and B, I have lately, at the suggestion of Dr. Schlesinger, begun measures of the two stars separately with respect to the star C.

Recent measures of CE, however, seem to show a slight possible motion in C (or E). Following are the measures:—

CE.			
1907·708	129°·65	45″·91	(3 *n*)
1915·859	129°·46	46″·43	(4 *n*)

Dr. Schlesinger has kindly called my attention to a peculiarity in the measured position angles of AB. Where a number of measures at widely different times of the year have been made, the angles in the latter part of the year seem to be as large as those in the first part, though they should be smaller. He suggests that this may be in some way connected with the hour angle. In my measures of this kind, when the stars are bisected for angle the line between them is placed vertical to the line between the eyes, even if the head has to be turned at a large angle to do it. In all the observations of AB, therefore, in east-hour angles the small star is uppermost, while in all measures in west-hour angles it is the lower of the two. The peculiarity is perhaps a physiological effect due to the fact that there is a considerable difference of magnitude between the stars. That it is not due to any instrumental effect is shown by its absence in the measures of A and C, which two stars are nearly of the same brightness. I hope to test the matter by measures on the same night in east- and west-hour angles, and also photographically. For an investigation of the cause of this peculiarity all the hour angles for the time of the measures, both for the present observations and for those printed in *Monthly Notices*, lxviii., are collected in the present paper. Those for the previously printed measures are given in a separate table, while those belonging to the present observations are printed with the measures.

Following are all the measures of Krueger 60 I have obtained since those printed in *Monthly Notices*, vol. lxviii, No. 9, p. 629. An additional column for the hour angle has been inserted in the case of AB, which, of course, will also serve for AC.

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* *Ap. J.*, vol. xxxii. p. 363, 1910.

1916MNRAS..76..592B

			AB.			
			P.	s.	H.A.	
			°	″	h m	
1909·354	May	9	100·43	3·06	E 4 30	
·373		16	99·57	3·16	E 4 10	
·378		18	99·79	3·20	E 4 45	
·392		23	98·74	3·04	E 3 15	
·411		30	98·43	3·02	E 3 50	
·417	June	1	98·82	3·19	E 5 15	
·513	July	6	97·98	3·12	E 0 55	
·584	Aug.	1	98·95	3·17	E 1 0	
·660		29	99·44	3·26	E 1 20	
·814	Oct.	24	97·25	3·11	E 2 10	
·819		26	99·29	3·21	E 1 5	
·838	Nov.	2	97·13	3·14	E 1 50	
·858		9	98·48	3·17	W 3 20	
·871		14	96·78	3·15	E 1 0	Single distance, one setting.
·910		28	100·21	3·06	W 1 5	
·915		30	99·11	3·13	E 0 20	
1909·632			98·78	3·14		
1910·537	July	15	95·49	3·15	E 1 50	Seeing = 3, meas. good.
·542		17	94·47	3·18	E 2 30	
·561		24	95·33	3·11	E 2 20	
·567		26	95·68	3·04	E 4 20	
·580		31	94·49	3·20	E 4 25	
·586	Aug.	2	95·28	3·14	E 1 10	
·605		9	93·52	3·14	E 2 20	
·619		14	93·50	3·06	E 2 5	
·624		16	96·41	3·17	W 0 45	
·693	Sept.	10	94·90	3·13	E 3 30	
·734		25	94·36	3·04	E 0 20	
·753	Oct.	2	93·12	3·28	E 1 10	
·767		7	96·04	2·99	W 0 35	Fairly good.
·772		9	96·61	3·01	W 1 0	
·791		16	93·77	3·10	W 0 20	Seeing v. bad. Very difficult.
·797		18	96·32	3·03	W 1 45	
·810		23	93·48	3·16	W 0 45	
·829		30	94·14	3·04	W 0 35	
·912	Nov.	29	94·99	3·01	W 3 15	
·931	Dec.	6	94·09	3·13	W 2 30	
·944		11	95·55	2·99	W 2 15	
1910·712			94·84	3·10		

1916MNRAS..76..592B

AB.—*continued.*

			P.	s.	H.A.	
			°	"	h m	
1911·577	July	30	92·23	3·10	W 0 35	
·591	Aug.	4	91·44	3·05	W 3 0	
·621		15	90·93	2·96	W 2 35	
·659		29	91·05	3·04	W 2 0	
·673	Sept.	3	90·15	2·91	W 1 35	
·717		19	91·59	2·98	W 2 45	
·755	Oct.	3	90·75	2·99	W 1 15	
·812		24	89·49	3·01	E 1 0	
·821		27	91·37	2·89	W 4 40	
·826		29	88·49	2·98	E 1 25	
1911·705			90·75	2·99		
1912·554	July	21	87·04	2·85	E 0 35	
·612	Aug.	11	87·09	2·92	W 0 25	
·636		20	86·39	2·84	E 2 0	Stars dim in thick sky. Seeing fair.
·650		25	86·81	2·89	W 0 40	Seeing fair, but stars faint.
·669	Sept.	1	85·42	2·80	W 1 25	
·694		10	86·30	2·94	W 0 35	
·746		29	87·00	2·90	W 1 35	
·751	Oct.	1	85·94	2·80	W 0 30	
·790		15	83·83	2·83	E 2 45	Image breaking badly.
·820		26	84·97	2·99	E 2 0	Seeing very bad.
·823		27	84·73	2·79	W 2 0	,, ,,
1912·704			85·96	2·87		
1913·499	July	1	80·66	2·92	E 0 20	
·504		3	82·55	2·74	E 1 40	
·518		8	80·74	...	E 0 20	Clouds.
·524		10	82·18	2·89	E 1 15	
·551		20	80·23	2·76	E 0 40	Seeing fair.
·567		26	82·17	2·84	E 0 15	Seeing good.
·589	Aug.	3	81·94	2·81	E 1 0	Difficult, seeing very bad.
·633		19	79·48	2·96	E 2 15	Seeing very bad.
1913·548			81·24	2·85		

1916MNRAS..76..592B

AB.—*continued.*

			P.	s.	H.A.	
			°	″	h m	
1915·391	May	23	72·11	2·49	E 2 45	Seeing = 2.
·418	June	2	71·54	2·55	E 2 35	
·454		15	69·00	[2·70]	E 2 5	Single distances. Omit distances.
·473		22	69·71	2·55	E 1 30	
·492		29	71·82	2·51	E 2 5	
·517	July	8	69·68	2·57	E 1 35	
·550		20	69·42	2·56	E 1 45	
·607	Aug.	10	70·49	2·57	E 2 20	
·741	Sept.	28	68·60	2·56	E 1 45	
·760	Oct.	5	69·09	2·57	W 2 15	
·780		12	69·72	2·57	W 1 50	
·785		14	67·54	2·59	W 5 30	
·796		18	68·19	2·63	W 3 0	
·818		26	67·64	2·48	W 3 40	
·837	Nov.	2	66·93	2·57	W 4 0	
·856		9	67·04	2·60	W 3 35	
1915·917	Dec.	1	67·64	2·49	W 4 55	
1916·021	Jan.	8	68·12	2·26	W 3 10	Small star faint in haze.
1915·678			69·12	2·54		

The above measures show beautifully the orbital motion of AB. As the distance is rather rapidly decreasing, the star may soon become a difficult object.

Estimates of the magnitudes of A and B were made on two nights:

1915 Dec. 1 A = 9^{m}·6 B = 12^{m}.
1916 Jan. 8 A = 9^{m}·7 B = 12^{m}·5.

AC.

			°	″
1909·354	May	9	59·18	44·44
·373		16	58·80	44·47
·378		18	59·24	44·32
·392		23	58·70	44·70
·411		30	59·14	44·49
·417	June	1	59·28	44·39*

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* The mean of two sets of measures made on this date.

1916MNRAS..76..592B

AC—*continued.*

		°	″	
1909·513 July	6	59·50	44·04	
·581	31	59·55	44·51	
·584 Aug.	1	59·43	44·73	
·660	29	59·56	45·18	
·814 Oct.	24	59·46	45·22	
·819	26	59·54	45·13*	
·838 Nov.	2	59·60	45·01	
·858	9	59·56	45·30	
·871	14	59·50	45·35	
·910	28	59·62	45·14	
·915	30	59·23	45·17	
1909·629		59·35	44·80	
1910·537 July	15	59·52	45·35	
·542	17	59·72	45·53	
·561	24	59·38	45·61	
·567	26	59·36	45·49	
·580	31	59·31	45·79*	
·586 Aug.	2	59·20	45·45	
·605	9	59·50	45·83	
·619	14	59·42	45·62	
·624	16	59·51	45·63	
·693 Sept.	10	59·46	45·76	Seeing excessively bad.
·734	25	59·64	45·90	Seeing poor.
·753 Oct.	2	59·00	46·04	
·767	7	59·45	46·05	Seeing bad.
·772	9	59·49	45·91	
·791	16	59·39	46·26	Seeing very bad.
·797	18	59·46	45·62	Seeing very poor.
·810	23	59·68	46·09	
·829	30	59·46	46·07	
·912 Nov.	29	59·41	46·32	
·931 Dec.	6	59·30	46·26	
·944	11	59·26	46·46	
1910·712		59·42	45·86	

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* The mean of two sets of measures made on this date.

1916MNRAS..76..592B

AC—*continued.*

			°	″	
1911·577	July	30	59·55	46·48	
·591	Aug.	4	59·54	46·47	
·621		15	59·30	46·56	
·634		20	59·59	46·52	
·659		29	59·43	46·69	
·667	Sept.	1	59·61	46·72	
·673		3	59·55	46·51	
·717		19	59·66	46·78	
·755	Oct.	3	59·55	46·82	
·812		24	59·38	46·81	
·821		27	59·67	47·06	
·826		29	59·47	46·89	
1911·696			59·52	46·69	
1912·554	July	21	59·30	47·23	
·612	Aug.	11	59·47	47·38	
·636		20	59·51	47·59	
·650		25	59·72	47·58	
·669	Sept.	1	59·81	47·52	
·694		10	59·32	47·72	
·746		29	59·51	47·72	
751	Oct.	1	59·55	47·76	Seeing poor, but measures good.
·790		15	59·25	47·97	Seeing very bad.
820		26	59·28	47·93	,, ,,
·823		27	59·52	47·85	,, ,,
1912·704			59·48	47·66	
1913·499	July	1	59·07	48·13	Seeing very bad.
·504		3	59·39	48·13	
·524		10	59·23	48·15	,, ,,
·551		20	59·41	48·20	Seeing bad.
·567		26	59·53	48·27	Seeing good.
·589	Aug.	3	59·60	48·44	Seeing very bad.
·633		19	59·32	48·48	,, ,,
1913·552			59·36	48·26	

1916MNRAS..76..592B

AC—*continued.*

			°	″	
1915·391	May	23	58·82	49·91	
·418	June	2	59·03	49·93	
·443		11	59·04	49·79	Single distances. Clouds.
·454		15	58·99	49·97	
·473		22	59·12	50·02	
·492		29	59·19	50·02	
·517	July	8	59·25	50·06	
·550		20	59·18	50·02	
·607	Aug.	10	59·33	50·14	
·741	Sept.	28	59·22	50·47	
·760	Oct.	5	59·35	50·51	
·780		12	59·38	50·56	
·785		14	59·31	50·64	
·796		18	59·24	50·56	
·818		26	59·27	50·59	
·837	Nov.	2	59·21	50·59	
·856		9	59·19	50·89	
1915·917	Dec.	1	59·26	50·74	
1916·021	Jan.	8	59·18	51·11	
1915·666			59·19	50·34	

The following measures of BC have been made for an independent determination of the mass of B. They will be continued.

BC.

			°	″	
1915·818	Oct.	26	58·77	48·03	
·837	Nov.	2	58·77	48·02	
·856		9	58·52	48·37	Difficult. Seeing very bad.
1915·917	Dec.	1	58·85	48·17	
1916·021	Jan.	8	58·83	48·41	
1915·890			58·75	48·20	

Following is a continuation of the previous measures of A and C with respect to the small stars near :—

AD.

			°	″	
1911·673	Sept.	3	33·66	29·35	
1912·790	Oct.	15	33·47	30·25	D = 14 mag.

1916MNRAS..76..592B

AE.

			°	″	
1909·584	Aug.	1	95·06	74·18	
·915	Nov.	30	94·74	74·74	
1909·750			94·90	74·46	
1910·624	Aug.	16	94·93	74·97	
·944	Dec.	11	94·40	75·74	
1910·784			94·66	75·35	
1912·694	Sept.	10	93·65	77·04	
·724		21	93·78	76·71	
·746		29	93·94	76·81	
·751	Oct.	1	93·96	76·67	
·790		15	93·81	77·10	
·823		27	93·93	77·12	
1912·755			93·84	76·91	
1913·633	Aug.	19	93·57	77·35	
·781	Oct.	12	93·48	77·56	
1913·707			93·52	77·45	
1915·418	June	2	92·61	78·23	Seeing = 2–3.
·555	July	22	92·89	78·50	
·569		27	92·50	78·71	
·607	Aug.	10	92·87	78·60	
·626		17	92·75	78·61	
·632		19	93·00	78·55	E = 12·9 mag.
1915·568			92·77	78·53	

AF.

			°	″
1909·915	Nov.	30	283·14	33·57
1910·693	Sept.	10	283·62	32·94
1911·826	Oct.	29	285·93	32·31

1916MNRAS..76..592B

AF—*continued.*

	°	″	
1912·694 Sept. 10	286·17	31·75	
·724 21	285·42	31·19	
·746 29	286·59	31·49	
·751 Oct. 1	286·45	31·67	
·790 15	287·11	31·70	
1912·741	286·35	31·56	

1915·555 July 22	289·72	30·38	
·569 27	290·58	...	Clouds.
·607 Aug. 10	290·12	30·26	
·626 17	289·72	30·30	
·632 19	290·55	30·42	F = 13·7 mag.
·760 Oct. 5	290·45	29·55	F = 14 mag.
·818 26	290·50	29·61	F = 14 mag.
1915·652	290·23	30·09	

CE.

	°	″	
1912·669 Sept. 1	129·76	46·21	Faint in clouds.
1915·760 Oct. 5	129·00	46·35	
·862 Nov. 11	129·49	46·48	
·897 24	129·84	46·71	Images very big and blurred.
·917 Dec. 1	129·51	46·22	
1915·859	129·46	46·44	

Two additional stars have been observed, to be used in future observations of A when it has receded too far from C.

AG.

	°	″	
1912·694 Sept. 10	190·52	61·06	G = 14·5 mag.
·790 Oct. 15	190·92	61·29	G = 13 mag.
1912·742	190·72	61·17	

AH.

	°	″	
1912·790 Oct. 15	235·98	90·02	H = 13·9 mag.

The two small double stars in the region of Krueger 60 (*M.N.*, vol. lxviii. pp. 653–4) have been observed again, but there does not seem to be any change.

1916MNRAS..76..592B

No. 1.

(B.G.C. 11718=B.D. +57° 2525.)

		°	″	mag.	mag.
1902·764 Oct.	6	247·04	3·19	9·7	12*
1913·781	12	246·86	3·23	9·8	12 1/2
1915·670 Sept.	2	246·12	3·27		
·741	28	245·26	3·23	9 1/2	12 1/2
1915·706		245·69	3·25	9 1/2	12 1/2

No. 2.

(1903·0 α 22^h 22^m 52^s·1, $\delta+57°$ 13′ 33″.)

		°	″	mag.	mag.
1907·711 Sept.	17	259·03	1·47	10·5	11·2*
1910·830 Oct.	30	260·18	1·38	11·5	12·5
1915·670 Sept.	2	263·00	1·36		
·722	21	260·06	1·49	10·5	11
1915·696		261·53	1·42	10·5	11

The following Component of No. 2 and a Faint Star North.

		°	″	mag.	mag.
1910·830 Oct.	30	340·73	87·93		13·3
1915·670 Sept.	2	340·53	88·06		

In the observations of No. 2 it was noticed that a star in the same field and north of it was also double. We will call this No. 3.

No. 3.

(1903·0 α 22^h 22^m 55^s·4, $\delta+57°$ 16′ 39″.)

		°	″	mag.	mag.
1915·722 Sept.	21	77·18	1·41	10 1/2	14
·741	28	80·67	...		14
·917 Dec.	1	78·09	0·87	12	15

One of these distances is wrong. The star is very difficult.†

No. 2 and No. 3.

1915·722 Sept. 21 8°·35 187″·63.

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* Omitted by mistake from *M.N.*, vol. lxviii. pp. 653–4.

† An observation on 1916 May 27 shows that the second distance is correct. The observation is 1916·404 May 27—80°·76 0″·94.

1916MNRAS..76..592B

These give $\Delta\alpha = +3^{s}{\cdot}35$, $\Delta\delta = +3'\ 5''{\cdot}6$, from which the above position of No. 3 was obtained.

Another small double star was run across in this region.

No. 4.

(1910·0 α 22ʰ 26ᵐ 2ˢ·12, $\delta + 57^\circ\ 18'\ 5''{\cdot}1$.)

	°	″	mag.	mag.
1910·830 Oct. 30	194·48	1·84	13·2	13·9
·912 Nov. 29	195·42	1·85	12·5	13·0
1910·871	194·95	1·84	12·8	13·4

The North Component of No. 4 *and a Star following.*

	°	″	mag.	mag.
1910·830 Oct. 30	151·56	40·71	...	12·9

This last star was compared with Helsingfors-Gotha A.G.C. 13199 on 1910 Oct. 30:

P.A. 21°·65. Dist. 128″·44,

from which the position of the double was obtained.

The position of the star C was also obtained on this date with respect to the above Helsingfors-Gotha star:

$$\Delta\alpha = -1^{m}\ 6^{s}{\cdot}8 (4 \text{ tr.}) \quad \Delta\delta = -0'\ 18''{\cdot}0 (2).$$

The resulting place for C is

$$1910{\cdot}0\ \alpha\ 22^{h}\ 24^{m}\ 51^{s}{\cdot}9,\ \delta + 57^\circ\ 15'\ 7''{\cdot}9.$$

The transits were discordant, so that the $\Delta\alpha$ is given only to the nearest tenth of a second.

The following table contains a collection of the hour angles for all my previous measures of Krueger 60 which were printed in *M.N.*, vol. lxviii. p. 629. It is thought that their importance in connection with the measures will warrant their publication in this paper for the use of future investigators.

[TABLE.

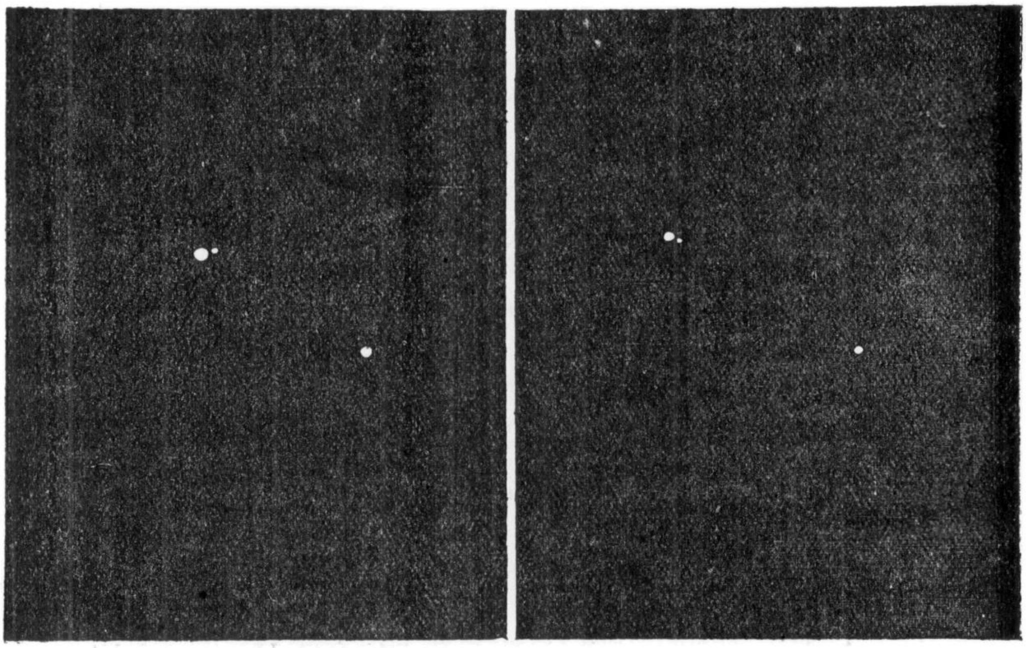
1916MNRAS..76..592B

Hour Angles for the Earlier Measures.

Date.			H.A.			Date.			H.A.		
				h	m					h	m
1900·937	Dec.	8	W	4	10	1904·560	July	23	W	0	30
·940		9	W	3	35	·570		27	E	2	35
·945		11	W	2	55	·584	Aug.	1	W	1	30
·948		12	W	4	5	·598		6	W	1	0
1901·729	Sept.	23	W	1	0	·642		22	E	0	40
·731		24	W	2	20	·655		27	W	2	10
·748		30	W	2	0	·675	Sept.	3	W	2	5
·751	Oct.	1	W	1	20	·751	Oct.	1	W	1	20
·783		13	W	1	15	·795		17	W	1	0
·805		21	W	1	15	·828		29	W	0	20
·827		29	W	2	0	·905	Nov.	26	W	3	45
1902·744	Sept.	29	W	3	25	1905·904	Nov.	26	W	1	0
·764	Oct.	6	E	0	15	·910		28	W	2	0
·766		7	W	0	55	1906·490	June	28	E	0	30
·785		14	W	1	30	·515	July	7	W	0	20
1903·380	May	19	E	5	20	·523		10	E	3	25
·418	June	2	E	5	10	·561		24	W	1	30
·437		9	E	3	0	·575		29	W	2	5
·454		15	E	2	55	·610	Aug.	11	W	2	10
·473		22	E	2	25	·619		14	W	2	40
·492		29	E	1	10	1907·289	Apr.	16	E	4	40
·495		30	E	1	10	·500	July	2	E	1	40
·511	July	6	E	1	10	·528		12	E	0	15
·514		7	E	1	15	·571		28	E	5	25
·645	Aug.	24	W	1	10	·577		30	E	5	50
·664		31	W	1	45	·596	Aug.	6	E	0	25
·667	Sept.	1	W	0	20	·601		8	E	0	15
·725		22	W	0	45	·610		11	E	5	0
·741		28	W	0	20	·615		13	W	2	35
·818	Oct.	26	W	1	30	·634		20	E	4	45
1904·335	May	2	E	4	20	·706	Sept.	15	W	4	45
·338		3	E	4	0	·749	Oct.	1	W	0	30
·373		16	E	3	45	1908·300	Apr.	19	E	5	0
·393		23	E	4	0	·338	May	3	E	5	20
·434	June	7	E	2	10	·376		17	E	3	40
·502	July	2	E	0	45	·382		19	E	3	25
·521		9	W	0	20	·390		22	E	3	40
·527		11	W	0	45	·401		26	E	3	25

1916MNRAS..76..592B

Two photographs of Krueger 60 are given below. These were made by the writer in 1908 and 1915 with the large refractor, with the regular screen and Cramer Instantaneous Iso plates. They are on exactly the same scale, and show the motion of the system AB with respect to C, and also the orbital motion of AB in the interval.



1908 July. 1915 September.

Photographs of Krueger 60, AB and C.
(Both photographs are on the same scale).

Yerkes Observatory, Williams Bay, Wisconsin:
1916 *March* 6.

Observations of V Cassiopeiæ (*Ch.* 8324) *in* 1910-16.

By A. N. Brown, M.A.

The 242 observations of the Long Period Variable V Cassiopeiæ, discovered by Anderson in 1893, which are given below, are in continuation of those published in *Monthly Notices*, vol. lxx. p. 627. Light curves have been drawn from them, from which it appears that 9 maxima, and 10 minima, as shown in the following table, occurred between 1910 June 3, and 1916 April 14.